

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	PS 17-344
Public Safety and Homeland Security Seeks Comment)	
On Response Efforts Undertaken During 2017 Hurricane)	DA 17-1180
Season)	

COMMENTS OF HUGHES NETWORK SYSTEMS LLC

Hughes Network Systems, LLC (Hughes), submits these comments in response to the Public Safety and Homeland Security Bureau (PSHSB) Public Notice seeking comment on the resiliency of the communications infrastructure, the effectiveness of emergency communications, and government and industry response to the 2017 hurricane season.¹ One of Hughes' most important activities is providing access to and ensuring reliable communications services during times of emergency. Hughes has taken a very active role in supporting several 2017 disaster relief efforts. These efforts include the relief activities following the devastating series of Atlantic hurricanes, of which, Hughes continues to provide necessary communications while the impacted regions work to restore their previous networks.

Based on Hughes' experience, there is a continuing need for the Federal Communications Commission (FCC), as well as federal, state and local governments, to put additional focus on emergency preparedness for critical infrastructure, including 9-1-1 networks, ahead of such

¹ Public Safety and Homeland Security Bureau Seeks Comment on Response Efforts Undertaken During 2017 Hurricane Season Public Notice, DA 17-1180 (December 7, 2017).

emergency situations. Only through ensuring resources are in place before crises strike, can the United States have a truly successful response that saves lives and property.

BACKGROUND

Hughes is the largest provider of satellite broadband services in the United States and globally, with more than one million subscribers in North America and Brazil. Hughes provides this industry-leading broadband service in North America through the use of a three satellite, geostationary orbit (“GSO”) Ka-band constellation over the United States, including coverage of Puerto Rico and the U.S. Virgin Islands. In response to Hurricanes Harvey, Jose, and Maria, Hughes has used and continues to use its available infrastructure and capacity to support relief efforts in the effected regions, namely in Texas, Puerto Rico, and the U.S. Virgin Islands.

The role of satellite technology, and HughesNet Gen5 in particular, has been diverse and expansive over the course of the 2017 relief effort. In Texas, Hughes worked with ResponseForce1 in supporting Federal Emergency Management Agency (FEMA) shelters with satellite broadband for public/community use to check in with family and friends via VoIP and internet.² In Puerto Rico, Hughes and ResponseForce1 supported the San Cristobal Hospital in Ponce and deployed VSATs and solar generators to get the hospital back up and operational with the ability to communicate. This enabled the hospital leadership teams to order additional supplies and medications as well as evacuate critical patients.³



² Hughes Blog: Response Force 1, last visited December 28, 2017. Available at: <https://www.hughes.com/disaster-relief-support/response-force-1>.

³ Ibid.

In these disaster stricken regions, Hughes is supporting retail customers, including wholesalers, pharmacies, and others to ensure business can be carried on as usual, including processing insurance claims, credit card transactions, and government issued food stamp debit cards.⁴ Since the hurricanes struck Puerto Rico and the U.S. Virgin Islands, there have been over 1,200 total HughesNet new activations by both government and private sector users on the islands.

Hughes is also supporting key government agencies in Puerto Rico and the U.S. Virgin Islands, such as FEMA, the National Weather Service (NWS), Department of Defense (DoD), and Customs and Border Patrol (CBP). Using a Hughes VSAT, ResponseForce1 worked with FEMA to get the St. Croix, St. Thomas and the San Juan Airports all back online to schedule the initial first responder flight cycles to the islands.⁵ In fact, FEMA has used Hughes services extensively during the response effort and Hughes expects FEMA will continue to do



so for the foreseeable future. In November alone, FEMA relied on Hughes satellite-based services to place over 30,000 calls.⁶

⁴ Hughes Blog: Coama Finds Connection in Isolation, last visited December 28, 2017. Available at: <https://www.hughes.com/disaster-relief-support/coamao-finds-connection-isolation>.

⁵ Hughes Blog: <https://www.hughes.com/disaster-relief-support/response-force-1>

⁶ Jack Corrigan, “How Puerto Rico is Rebuilding Its Network Three Months After Maria,” Nextgov (December 19, 2017). Available at: <http://www.nextgov.com/emerging-tech/2017/12/how-puerto-rico-rebuilding-its-network-three-months-after-maria/144686/>.

DISCUSSION

A. Impacts to Communications Infrastructure and the Importance of Emergency Preparedness

Terrestrial communications networks struggle to withstand the forces of a natural disaster, such as a hurricane or flood, often being toppled, washed out, pulled down, or severed. Satellite-based communication infrastructures are not exposed to the same terrestrial vulnerabilities wrought by storms and other disasters, making them extremely well situated to provide emergency communication services in communities where terrestrial infrastructure has been damaged. However, due to a systemic lack of emergency preparedness, rarely are there sufficient satellite facilities in place to support the needs of emergency responders and communities for ad hoc communications following a disaster, especially to the degree necessary during the 2017 hurricane season.



While no network will be impervious to all disasters and able to meet every potential need scenario, there is significant room for governments of all levels, and the private sector, to be better prepared in the face of emergencies that are sure to come. Failure to design and implement resilient communication infrastructure prior to an emergency consistently results in increased time without

a communications solution, as was seen during Superstorm Sandy.⁷ By contrast, during the 2017 hurricanes, pre-deployment of emergency communications equipment substantially reduced delays in restoring communication links.⁸

Increased resiliency can be obtained by critical infrastructure and other key operations being supported with satellite communications capabilities. Critical facilities, such as schools, utilities, police and fire stations, hospitals, and Federal Emergency Management Agency (FEMA) regional offices, should be outfitted with resilient satellite communications, such as VSATs, in addition to their traditional terrestrial communications. The cellular and 9-1-1 networks, can also benefit from increased resiliency by employing true technological path diversity through the addition of satellite networks as an alternate path. In addition, commercial operations, such as retailers and gas stations, can benefit from continuity of services by having satellite communications capabilities available.

Where such path diversity has been made available, we have seen significant improvements on the resiliency of the communications network during emergencies. For example, as Hurricane Maria was moving on from Puerto Rico, a new large-scale emergency was taking place on the island. The 90 year old Guajataca Dam, located between the towns of San Sabastian, Quebradillas and Isabela, was compromised and



Photo by Pvt. Deomontez Duncan

⁷ Jim McKay, “Sandy Created a Black Hole of Communication” Emergency Preparedness (January 28, 2013). Available at: <http://www.govtech.com/em/disaster/Sandy-Black-Hole-of-Communication.html>.

⁸ Hughes Press Release: Hughes Announces Availability of Rapidly Deployable Emergency Response Systems, (September 20, 2017). Available at: <https://www.hughes.com/who-we-are/resources/press-releases/hughes-announces-availability-rapidly-deployable-emergency>.

was experiencing severe structural damages. The entire island was already without power and terrestrial communications. However, the NWS had an existing VSAT at their local station and connected it to their power generator enabling them to make emergency calls to the DoD and FEMA to inform them of the impending emergency.

The result of NWS having path-diverse means of communications, was an immediate evacuation order from the U.S. Federal Government for the estimated 70,000 people who lived and worked downstream from the dam.⁹ Additionally, the DoD scrambled emergency resources to the dam and restored it to a stable and operational condition, neutralizing a potential catastrophe before it could happen.¹⁰

However, two things are holding back the widespread use of technological path diversity. The first is a lack of education of users on the importance of path diversity. The FCC should encourage, whether through the Communications Security, Reliability and Interoperability Council (CRSIC) or another forum, the development of best practices for critical infrastructure and other uses, including 9-1-1, that encourages the use of technological path diversity. Similar outreach should be performed by other agencies, including FEMA. The second issue is a lack of funding. Any funding opportunities that the government adopts to increase communications network resiliency should include provisions for supporting technological path diversity. This should be available for government agency funding, as well as for other critical infrastructure.

⁹ Ralph Ellis, “Puerto Rico dam fails; evacuations begin along Guajataca River,” CNN (September 23, 2017). Available at: <http://www.cnn.com/2017/09/22/us/puerto-rico-guajataca-river-dam-evacuations/index.html>.

¹⁰ Lisa Hunter, “Department of Defense agencies join forces to repair Guajataca Dam,” U.S. Army (October 4, 2017). Available at: https://www.army.mil/article/194908/departments_of_defense_agencies_join_forces_to_repair_guajataca_dam.

While not exhaustive, these steps advance technological path diversity for communications and will ensure less time will be spent trying to procure and deploy communication services during times of emergencies.

B. FCC Response

The FCC plays a critical role during emergencies; most importantly by ensuring that communications service providers have the regulatory authorization needed, on a timely basis, to meet the demands of the communities they are serving during these times of crisis. Hughes' own experience with the FCC during the 2017 hurricane season can attest to the agency's timely and attentive responses to such requests.

Beyond simply responding to requests for emergency authorization, the FCC has an important role as an expert agency in telecommunications, and it needs to levy this expertise ahead of any future crises to better prepare other agencies and industry partners to enhance the national response to such disasters. The FCC, as the expert agency, is particularly well-positioned to work with industry to develop best practices for government agencies and industry to be better able to meet emergency needs. This includes educating these groups about the importance of technological path diversity ahead of an emergency. It also includes working with consumers to ensure they know their technology choices for use during emergencies.

C. User Experience

One of the common storylines during the 2017 hurricane season, and which is frequently raised during times of emergency, was the inability of victims to reach emergency personnel through 9-1-1. The inability to reach emergency relief personnel through traditional means, such as 9-1-1 and public safety answering points (PSAPs) networks forced victims to desperately search

for alternative means of calling attention to their situations. The stories from Hurricane Harvey were replete with examples of victims tweeting their locations and posting on other social media, in hopes that neighbors would come to their rescue, since they could not reach emergency personnel.¹¹

The failure seen throughout 2017 is in large part the result of a lack of path diversity to support emergency calling. True technology diversity requires the use of satellite broadband connectivity as a fail-safe back-up to terrestrial networks. By incorporating satellite into the 9-1-1 and PSAP architecture, network administrators can ensure the highest levels of resiliency to handle the escalated call volumes in the face of an emergency situation. In fact, some regions are already recognizing and adopting these measures voluntarily. The Ark-Texas Council of Government added a satellite network to its 9-1-1 system to ensure its citizens have access to emergency services across nine counties in Texas and one in Southwest Arkansas.¹² With a satellite path diversity, if the T1 lines go down, routers at each of the PSAPs switch to the satellite system. If similar models for path diversity had been in place in emergency response centers and PSAPs in the Houston area at the time of Hurricane Harvey, it is likely that emergency services would have been able to respond to a larger volume of calls for help.

¹¹ See e.g. Chris Ciaccia, “Tropical Storm Harvey: Is Twitter becoming the new 911?” Fox News, August 28, 2017. Available at: <http://www.foxnews.com/tech/2017/08/28/topical-storm-harvey-is-twitter-becoming-new-911.html>; see also Lauren Silverman, “Facebook, Twitter Replace 911 Calls for Stranded In Houston”, NPR, August 28, 2017. Available at: <https://www.npr.org/sections/alltechconsidered/2017/08/28/546831780/texas-police-and-residents-turn-to-social-media-to-communicate-amid-harvey>.

¹² KSLA Staff, “Backup 911 system designed in Texarkana recognized with national award,” KSLA News 12 (December 5, 2016). Available at: <http://www.ksla.com/story/33917642/backup-911-system-designed-in-texarkana-recognized-with-national-award>.

As the FCC looks at ways to improve emergency preparedness and response, it is critical that there be a focus on the need for path diversity for our nation's 9-1-1 systems, especially as considerations are being made to upgrade and update the nation's 9-1-1 infrastructure. Establishing best practices in CSRIC or other advisory committees and requiring technological path diversity for funding, could better prepare our nation for the next emergency situation where access to 9-1-1 response services will be critical to save lives.

D. Preparedness Is Key to A Successful Emergency Responses

The FCC and the emergency response community must not just look at pre-positioning to ensure there are required facilities deployed but must plan for emergency preparedness. In many emergencies, and even in the case of this year's hurricane season, there is too little time available for adequate pre-positioning of communications infrastructure be made available. Spending the time to educate consumers about the importance of being prepared for emergencies is critical.

Unfortunately, the marketplace and the government do not offer sufficient incentives to build out and maintain resilient communications infrastructure. This is where the government should step in to help support on-going network resiliency. By failing to make adequate funding available to support communications for critical infrastructure, the long term effect is often greater costs, including loss of human life.

CONCLUSION

This year, three major hurricanes devastated different regions of the United States. Unfortunately, the continued lack of adequate preparedness for emergency response exacerbated the casualty and property damage already inflicted by the storms themselves. While the FCC cannot control the weather, the agency is in a position to bolster government and industry

responsiveness to such crises. The FCC must work to include technological path diversity in its best practices, and explore the adoption of such requirements in its infrastructure funding criteria, such as a contingency for receipt of 9-1-1 network upgrade funding. The government must ensure that adequate funding resources are available to ensure that critical infrastructure and facilities have access to the tools they need to keep communications up and operational during even the worst disasters. With the deployment of the latest satellite technologies, there is no reason for the United States be unprepared again.

Respectfully submitted,

Jennifer A. Manner
Senior Vice President, Regulatory Affairs
Jodi Goldberg
Associate Corporate Counsel, Regulatory Affairs
HUGHES NETWORK SYSTEMS, LLC
11717 Exploration Lane
Germantown, Maryland 20876
(301) 428-5893

January 22, 2018